No 41 C #22

Dec. 6 1826

192 Pine St.

This is a very interesting essay
being well handled – a few trifling
errors occur in the spelling –

A Dissertation

on

Absorption

Passed March 12 1827
W. L. H.

by

John B. Zabriskie

of New Jersey

Nov. 1826

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No part of the science of phisiology presents greater perplexity and confusion than the doctrine of absorption. The student finds presented to him, 'a rude and indigested mass', which he must separate and arrange in proper order. The several theories on this subject also are so mixed with hypothesis, intricacy, and error, that they tend to bewilder, rather than enlighten the mind.

The following are the principal causes which have tended to produce this confusion.

1 The ambiguity of the terms used. Not only are the same terms used by different authors to express different ideas, but the same term is often used in a different sense, by the same author. Some divide the absorbent system into two divisions, the lymphatic, and lacteal, while others refuse to extend the term absorbent, to the lymphatics. The deposit of lymph, according to authors, is the first part of the process of the formation of organic matter. The ends of a broken bone, say they, pour out lymph, this is a convenient nidus for

vessels to form in; they shoot into it from every part, depositing gelatine, cartilage, and at length bone. Again the process of cicatrization is very similar, 'coagulable lymph' is poured out, into which the vessels of the neighbouring parts are extended, forming a new part and healing the lesion. Adhesions between the viscera are assisted by the 'effusion of lymph'. Abscesses are surrounded by a layer of coagulated lymph. But lymph is also that matter which is taken up by the absorbents to be carried to the general circulation, being no longer of use to the system. The fibrine of the blood, according to authors is 'coagulable lymph', the crassimentum is composed partly of coagulated lymph, and the serum appears by some to be considered very nearly as pure lymph. Hence lymph appears to be both the matrix in which organization commences, and also the refuse of the system, yet only to be carried out by the secretions. The ambiguity here evidently arises from giving several different meanings to the same word lymph. The use of the term should be confined to that limpid transparent fluid found in the lymphatics

2 Hypothesis has taken the place of theory, and general laws are laid down which are not sufficiently authenticated by facts. Much of the confusion on the subject of lymph before mentioned depends without doubt on the ambiguity of the terms, yet hypothesis has also contributed its share by supposing that lymph formed the bond of union between parts which are lacerated or fractured, and is the matrix or nidus in which new parts are formed.

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Is it rational to suppose that the same fluid can be the refuse of the system fit only to be carried out by the secretions, and at the same time the matter from which highly organized and new parts are formed? If the motion of the lymph be from the circumference to the center as the situation of the lymphatic valves appears to demonstrate, no retrograde motion can take place, neither can these vessels pour out lymph at the extremities. Nor does it happen from the divided vessels, for the fluid which appears upon the surface of wounds does not appear immediately after the accident, but when the inflamation is in such a state as to be best adapted to the healing of the wound. But further the lymph differs from the serum of the blood and that gelatinous matter which appears on the surface of wounds both in its chemical and mechanical properties. The lymph is a transparent limpid fluid, not coagulable by heat or acids. Serum is coagulable by both, and has some viscidity. This gelatine has considerable viscidity unlike the limpid fluid of the lymphatics

3 The opinions of great men who have investigated this subject are received by many as facts. Thus many relying upon the opinions of those who have written on this subject, consider it a fact capable of demonstration, that absorption is continually going on in the solids as well as the fluids, and that the lymphatics are the vessels by which this process is carried on. But as shall presently be shown It is probable the first of these does not take place and then

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are some very powerful arguments against the probability of the second. It is curious to observe how far the spirit of speculation has carried some great men. Richerand not only feels assured that the lymphatics perform the office of absorption, but describes the particular manner in which this action is performed. "The mouth "of a lymphatic when about to absorb, erects itself, draws towards "itself, and raises the surrounding membranous parts, and thus "forms a small tubercle similar to the papilla lacrymalis." (Vide Richerand's Physiology C. II. S. 42.)

These three then are the heads under which the causes which have tended to perplex and confuse our subject may be arranged; and lymph appears like the doctrine of sympathy to be a very convenient assistant to help the physiologist or pathologist out of any troublesome perplexity in which he may happen to be entangled.

It shall be the object of the present essay, after taking a brief view of the doctrine of absorption, to examine how much is theory supported by facts, and what part is merely hypothesis, shewing that absorption is continually taking place in the fluids, and rendering it extremely probable that absorption only takes place in the solids when there is a change in the organization, or in other words that in the healthy adult, when not under the operation of foreign agents, no absorption of the solids takes place.

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[illegible] as experience [illegible] of absorption [illegible] [illegible]

[illegible] to venous, without the assistance of the [illegible] respiration.

When examining the blood as it appears in these two states we must bear in mind the principal distinctions consists in [illegible]

[illegible]

[illegible] the organization from the action of foreign bodies and [illegible]

[illegible]

Hence as no rational objection can be produced against this doctrine, and from the facts which have been [illegible]